BS EN 14404-4:2024

BSI Standards Publication

Personal protective equipment — Knee protectors for work in the kneeling position

Part 4: Requirements for the combination of interoperable knee pads and garments (type 2)

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National foreword

This British Standard is the UK implementation of EN 14404-4:2024. It supersedes BS EN 14404:2004+A1:2010, which will be withdrawn upon publication of the rest of the series.

The UK participation in its preparation was entrusted to Technical Committee PH/3/14.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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EUROPEAN STANDARD

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May 2024

ICS 13.340.50

Supersedes EN 14404:2004+A1:2010

English Version

Personal protective equipment - Knee protectors for work in the kneeling position - Part 4: Requirements for the combination of interoperable knee pads and garments (type 2)

Équipements de protection individuelle - Protecteurs de genoux pour le travail à genoux - Partie 4 : Exigences relatives à la combinaison de plaques de genouillères interopérables et de vêtements (type 2)

Persönliche Schutzausrüstung - Knieschutz für Arbeiten in kniender Haltung - Teil 4: Anforderungen für die Kombination von interoperablen Kniepolstern und Bekleidung (Typ 2)

This European Standard was approved by CEN on 20 June 2022.

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 14404-4:2024) has been prepared by Technical Committee CEN/TC 162 “Protective clothing including hand and arm protection and life jackets”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2024 and conflicting national standards shall be withdrawn at the latest by November 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document, together with EN 14404-1 to EN 14404-3 and EN 14404-5 to EN 14404-6, will supersede EN 14404:2004+A1:2010.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

EN 14404 “*Personal protective equipment — Knee protectors for work in the kneeling position*” is split into 6 parts:

— *Part 1: Test methods;*

— *Part 2: Requirements for wearable knee protectors (type 1);*

— *Part 3: Requirements for the individual combination of knee pads and garments (type 2);*

— *Part 4: Requirements for the combination of interoperable knee pads and garments (type 2);*

— *Part 5: Requirements for knee mats (type 3);*

— *Part 6: Requirements for kneeling systems (type 4).*

With the splitting of the standard, the following changes were made:

— definition of the protection zone;

— new combination of interoperable knee pads with interoperable garments (EN 14404-4);

— a bend test for interoperable knee pad was introduced;

— normative references were updated, further normative references are included;

— the cleaning of garments was taken into account;

— an uneven test surface and test was introduced;

— no more "UNISIZE" size; adjustment of size designation;

— additional markings were added.

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Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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Introduction

Kneeling is a frequently occurring working position, but one which is problematic from an occupational health viewpoint. Without knee protectors, workers can suffer immediate injuries from hard surfaces and small stones and similar objects lying on the surfaces. However, no knee protector can ensure that workers will not suffer medical complications if they are required to kneel for long periods.

It is important that knee protectors do not compromise venous drainage in the leg while kneeling or standing up. Therefore, it is important that it is easy for workers to change position and to stand up to re-establish a normal blood circulation at frequent intervals while wearing knee protectors.

Work in a kneeling position involves the risk of chronic diseases such as prepatellar bursitis and cartilage injuries caused by continuous pressure on the knees. Knee protection is therefore recommended for all work in the kneeling position. The protection should distribute forces evenly and prevent small hard objects on the ground causing injuries. Many workers have pre-existing damage to their knees, particularly to their cartilages from sports injuries and from previous work. These injuries will be made worse by further kneeling. Wearing knee protectors cannot correct existing damage but should slow down further damaging effects.

Work in a kneeling position can expose the skin of the shins, knees and thighs to toxic and corrosive materials normally kept off the body while walking and standing by waterproof or water-resistant footwear. Knee protectors and trousers for use with such wet materials and particularly wet cement, should take this into account and provide adequate protection.

For working in a kneeling position, four types of knee protectors exist:

— wearable knee protectors (type 1),

— knee pads in combination with garments (type 2),

— knee mats (type 3), and

— kneeling systems (type 4).

Interoperable knee pads as removable protectors can be sold on their own. In these cases, the attention should be given to the Guidelines of the PPE Regulation application (April 2018): "*In case removable protectors are placed on the market, they are required to be certified as PPE on their own, as these must fulfil all the applicable requirements of the PPE Regulation (EU declaration of conformity, CE Marking, etc.)".* This document has been drafted to cover this situation as well.

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1 Scope

This document specifies requirements for interoperable knee pads to use in garments and for garments to use with interoperable knee pads and defines performance levels for use when working in a kneeling position in order to reduce injuries to the knees caused by continuous pressure and penetration. Requirements for the marking of the interoperable knee pad and the information to be supplied by the manufacturer are given. Where protection against additional hazards is claimed, performance requirements from other standards are applicable.

This document does not apply to knee protectors that are medical devices or are intended for sports and motorcycles.

In this document requirements are given for a combination of a garment with a fixed sized knee pad pocket and fixed sized knee pad (interoperable pad).

A specific combination of an individual pad and accordingly designed garment is described in EN 14404-3 and is excluded from this part.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 14404-1:2024, *Personal protective equipment - Knee protectors for work in the kneeling position - Part 1: Test methods*

EN ISO 13688:2013, *Protective clothing - General requirements (ISO 13688:2013)*

EN ISO 8559-2:2020, *Size designation of clothes - Part 2: Primary and secondary dimension indicators (ISO 8559-2:2017)*

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp/

— IEC Electropedia: available at https://www.electropedia.org/

3.1
knee protector (type 2)
combination of a garment with knee pockets or other means of attachment and pads forming the knee protection

3.2
interoperable knee protector to use in garments (type 2)
combination of a garment with a fixed sized knee pad pocket and fixed sized knee pad (interoperable pad)

3.3
individual combination of knee pads and garments (type 2)
specific combination of an individual pad and an accordingly designed garment

Note 1 to entry: Specifications are contained in EN 14404-3:2024.

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